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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/629,882

07/28/2003

John C. Devine

MER103

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20482

7590

01/13/2005

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EXAMINER

PHAM, LEDA T

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/629,882

Applicant(s)

DEVINE, JOHN C.

Examiner

Leda T. Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/22/03</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings were received on 12/18/03. These drawings are not acceptable because these drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because all the drawing (figures 1 – 4) include the reference characters not matched with the elements in the description, and the reference signs not matched in the description. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawing filed on 7/28/03 is used for examination.

### ***Specification***

3. The disclosure is objected to because of the following informalities: on page 8, “an annular space 15A” should be changed to --an annular space 16-- on line 2, and on line 12 “an inlet 20 that is located in the generator end cover 18” does not show in figure 2. Does applicant means the reference number 30 in figure 2? On page 10, where is “the air 17A” (line 6)? “The

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bearings 10 and 13” (line 14) should be changed to –the bearings 10 and 11-- “The rotor shaft 1” on line 16 should be changed to –the rotor shaft 6—

4. The specification is objected to because it lacks written description to support for the feature of claim 9 such as “said magnets being placed such that the opposite poles of adjoining magnets face each other”

Appropriate correction is required.

#### ***Claim Objections***

5. Claims 1, 7, 9 - 10 are objected to because of the following informalities:

In claim 1, please delete the comma after “a generator housing”, and line 14 “said cylindrical aluminum tube” lacks of antecedent basis. It should be change to –said cylindrical aluminum sleeve--

In claim 7, “threadedly” is misspelled.

In claim 9, please insert a comma between “face each other” and “the generator” on line 4 of claim.

In claim 10, please delete the comma after “a generator housing”

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1, 5 –6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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8. In claim 1, “a sleeve” is indefinite because the subject matter does not describe in the specification. In light of the specification, the sleeve is understood as the annular space forming between the permanent magnet generator housing and the stator housing.

In claims 5 – 6, the shaped metal alloy is indefinite because the subject matter lacks of written description. What is a shaped metal alloy? Does applicant mean the magnets are held in place on the shaft by a shape memory alloy wherein the shape memory alloy is a metal ring? If this is the case, please rewrite the claim to make it clear. In light of specification, it is understand as a metal ring (lines 17 – 21 page 9 of specification).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glauning (U.S. Patent No. 6,087,744) in view of Staub et al. (U.S. Patent No. 5,223,757).

Referring to claim 1, Glauning teaches a generator including a permanent magnet generator (figure 2), the combination having:

a generator housing (36);

a stator housing (40) within said generator housing, said stator housing outer surface being fitted with external fins ( the meander-shaped grooves, line 14 – 18, column 3), said fins surrounded by a sleeve (cooling medium) extending generally axially from front to rear along said stator housing external surface;

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a stator winding (10) within said stator housing;

a hollow shaft (4) rotatably mounted within said stator housing, said shaft having an air channel communicating therethrough an inlet end and an outlet end (the arrow air flowing from inlet at end shaft 2 and flowing out from outlet 22, or 32 in figure 2);

a fan (28) mounted on said hollow shaft;

means (motor) for rotating said shaft;

whereby said stator housing is fit within said generator housing such that there is a space (cooling passage 38) between said housings and when said generator is in operation, said fan draws cooling air forward through in said rotor shaft (4) and ejects said air through said space between said stator housing and said generator housing over said stator housing external fins into the atmosphere (the arrows in figure 2, and flowing out through cooling passage medium 32, 38, 22), and thereby cools said generator (line 29 – 36 column 3).

However, Glauning does not teach a cylindrical aluminum sleeve mounted inside the hollow shaft.

Staub teaches a motor cooling using a liquid cooled rotor (figure 1) having a hollow shaft (7) with a cylindrical aluminum sleeve (27) mounted inside the hollow shaft for good heat transfer through the shaft.

Thus, it would have been obvious to one having skill in the art at the time the invention was made to modify Glauning's generator with a cylindrical aluminum sleeve mounted inside the hollow shaft as taught by Staub. Doing so would improve heat removal from the machine.

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11. Claims 2, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Glauning and Staub as applied to claim 1 above, and further in view of Halimi et al. (U.S. Patent No. 5,605,045).

Regarding to claim 2, the combination of Glauning and Staub teaches the claimed invention, except for the added limitation of the generator comprising an air filter.

Halimi teaches in his invention a cooling system with the generator having an air filter to remove the larger physical contaminants (line 36- 37 column 2).

Thus, it would have been obvious to one having skill in the art at the time the invention was made to modify the generator with an air filter as taught by Halimi. Doing so would prevent the contaminants coming to the generator.

Regarding to claim 4, Halimi teaches the generator comprising permanent magnets (62,64,66, 68) mounted on said shaft (figure 2).

12. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Glauning, Staub, and Halimi as applied to claim 2 above, and further in view of Rakow (U.S. Patent No. 4,358,303).

Regarding to claim 3, the combination teaches the claimed invention, except for the added limitation of the air filter is self-cleaning.

Rakow teaches an alternator having a self-cleaning air filter (see claim 1) for keeping the cooling air passages of alternators free of dirt and debris.

Thus, it would have been obvious to one having skill in the art at the time the invention was made to modify the air filter in the generator with a self-cleaning air filter as taught by Rakow. Doing so would keep the alternator free of dirt and debris.

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13. Claims 5, 7 – 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Glauning and Staub as applied to claim 1 above, and further in view of Nilson (U.S. Patent No. 6,661,145 B1).

Regarding to claims 5 and 7, the combination substantially teaches the claimed invention, except for the added limitation of the magnets are held in place by a plurality of magnet retention rings (or metal ring as recited in claim 5) that are configured to secure said magnets to said shaft, said retention rings being fitted around said shaft and threaded connected to said shaft.

Nilson teaches a rotor for a high speed permanent magnet motor having permanent magnets (21) mounted on a shaft (20) by a plurality of magnet retention rings (24, 25) that are configured to secure said magnets to said shaft, said retention rings being fitted around said shaft and connected to said shaft (by nut 28 through thread 29).

Thus, it would be obvious for one having skill in the art at the time the invention was made to modify the generator with magnet retention rings as taught by Nilson. Doing so would secure the magnets to the shaft and obtain the highest possible pre-tension of the magnets.

Regarding to claim 8, Nilson teaches the generator wherein said magnets (21) include a plurality of permanent magnets arranged in a plurality of rows that extend around the circumference of said shaft (figure 4) and said magnets are further held in place by at least one magnet spacer ring (23) that is configured to fit between two of said rows and secure said magnets to said shaft, and said spacer ring being fitted around said shaft (figure 2).

Regarding to claim 9, Nilson teaches the generator wherein said magnets include a plurality of permanent magnets (21) arranged in rows that extend around the circumference of said shaft, said magnets being placed such that the opposite poles of adjoining magnets face each



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other the generator further comprising interpole spacers (23) placed between adjoining magnets; and said interpole spacers being threaded connected to said shaft (figure 4).

14. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Glauning, Staub, and Nilson.

Regarding to claim 6, the combination of Glauning, Staub, and Nilson substantially teaches the claimed invention, except for the added limitation of the metal ring is Nitinol 60. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select Nitinol 60 as a material for the metal ring to hold the magnets mounted on the shaft because it has been held to be within the general skill of a worker in the art to select a known material in the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin 125 USPQ 416.*

***Allowable Subject Matter***

15. Claim 10 would be allowable if rewritten or amended to overcome the claim objection, set forth in this Office action.

16. The following is an examiner's statement of reasons for allowance: the record of prior art does not show a generator having a refrigeration compressor and refrigeration coils mounted with a rotor shaft.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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***Conclusion***

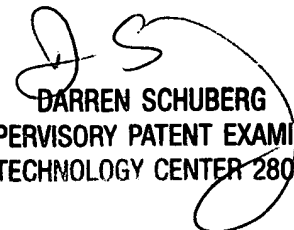
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leda T. Pham whose telephone number is (571) 272-2032. The examiner can normally be reached on M-F (8:30-6:00) first Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leda T. Pham  
Examiner  
Art Unit 2834

LTP  
January 3, 2005

  
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